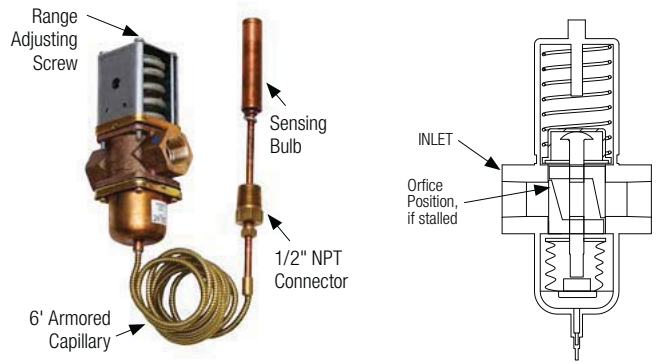


# Modulating Water Valves and Bulb Wells

**APPLICATION:** These modulating valves regulate the flow of water to the heat exchanger to maintain a desired exiting oil temperature. They open automatically when temperature increases at the sensing bulb. **No** external power source is required to actuate the valve. **Not to be** used for salt water service.

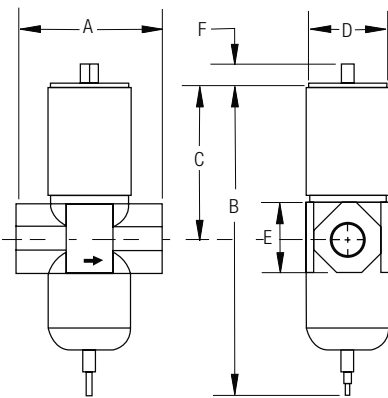
**ADJUSTMENT:** 1/2" to 1 1/4" valves can be adjusted with a screwdriver, 1 1/2" and 2" have a 1/2" square shaft. Turn the adjusting screw clockwise to **decrease** opening temperature; and counterclockwise to **increase** opening temperature. Valves are not calibrated, so final desired temperature setting must be established experimentally. Valve is fully open 36°F above opening point.



Part Number	Water Valves				Bulb Well Recommended Size
	Pipe Size (NPT)	Range (Opening Point)	Sensing Bulb Size Diameter X Length	Maximum Water Flow	
65293	1/2"	115°F to 180°F	11/16" x 3 1/4"	25 GPM	65140
65127	3/4"	115°F to 180°F	11/16" x 3 1/4"	40 GPM	65140
65128	1"	115°F to 180°F	11/16" x 6"	55 GPM	65141
65146	1 1/4"	115°F to 180°F	11/16" x 6"	75 GPM	65141
65511	1/2"	75°F to 135°F	11/16" x 10"	25 GPM	65280
65253	3/4"	75°F to 135°F	11/16" x 10"	40 GPM	65280
65254	1"	75°F to 135°F	11/16" x 16 1/4"	55 GPM	67438
65255	1 1/4"	75°F to 135°F	11/16" x 16 1/4"	75 GPM	67438
66100	1 1/2" ASME	75°F to 135°F	11/16" x 16 1/4"	90 GPM	67438
67173	2" ASME	75°F to 115°F	11/16" x 43"	150 GPM	67808

Working pressure to 150 PSI Maximum. \*For additional protection of the bulb well stem, use the next longer bulb well.

## Water Valves



Valve Size	Dimensions (Inches)						Approximate Shipping Weight (LBS)
	A	B	C	D	E	F	
1/2"	3/4	7	3 3/8	1 27/32	1 1/2	1 1/2	4.3
3/4"	3 3/16	7 29/64	3 51/64	2 1/32	1 3/4	1 3/2	5.8
1"	4 27/32	10 13/16	5 31/64	2 5/8	2	1/2	10
1-1/4"	4 59/64	10 37/64	5 43/64	2 5/8	2 3/8	1/2	12
1-1/2"	5 5/16	10 37/64	5 43/64	2 5/8	See Flange below	1/2	18
2"	6 5/8	12 33/64	6 15/32	3 1/2		1/2	27

Valve Size	Flange Specifications (Inches)			
	Number of Bolt Holes	Bolt Hole size	Bolt Circle	Flange Diameter
1/2"	4	5/8	3 3/8	5
2"	4	5/8	4 3/4	6

Standard temperature elements are furnished with 6' capillary. Longer capillary lengths not available. Valve Disc: Buna N in brass disc retainer.



# Modulating Water Valves and Bulb Wells

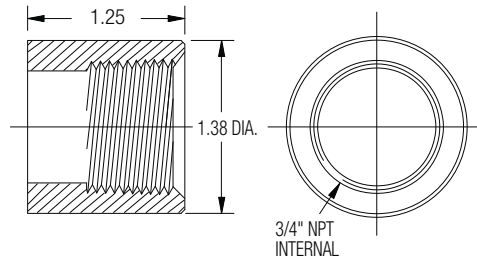
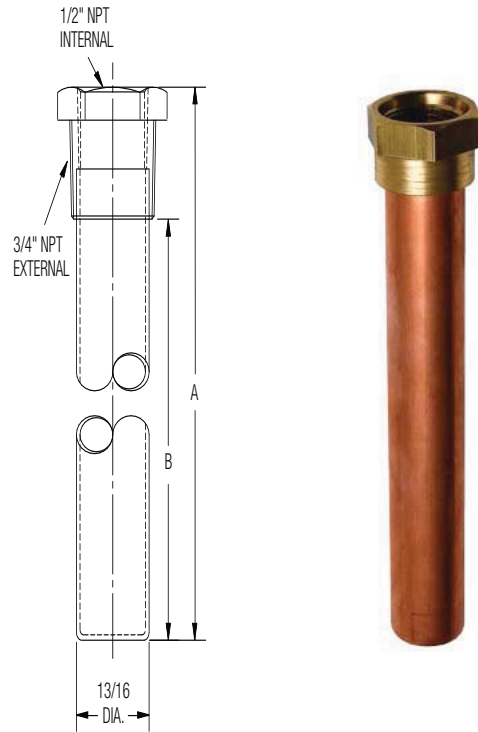
## Bulb Wells

Bulb Well Part Number	Dimensions In Inches		Approximate Shipping Weight (LBS)	Materials
	A	B		
65140	4 <sup>15</sup> / <sub>32</sub> "	3 <sup>15</sup> / <sub>32</sub> "	1	Tube: Copper Fitting: Brass
65141	7 <sup>1</sup> / <sub>32</sub> "	6 <sup>1</sup> / <sub>32</sub> "	1	
65280	11 <sup>17</sup> / <sub>32</sub> "	10 <sup>10</sup> / <sub>32</sub> "	1	
67438	17 <sup>15</sup> / <sub>32</sub> "	16 <sup>15</sup> / <sub>32</sub> "	1	
67808	44 <sup>3</sup> / <sub>8</sub> "	43 <sup>3</sup> / <sub>8</sub> "	1	

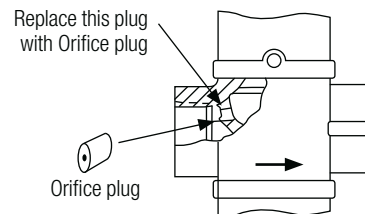
Custom Bulb Well lengths available. Consult factory for additional information.

Water Valve Part Number	By-Pass Orifice Diameter	Maximum Bulb Temperature °F	Opening Temperature (Factory Setting) °F
65293	.062"	200	135
65127	.062"	200	135
65128	.093"	200	135
65146	.093"	200	135
65511	.062"	155	103

Water Valve Part Number	By-Pass Orifice Diameter	Maximum Bulb Temperature °F	Opening Temperature (Factory Setting) °F
65253	.062"	200	135
65254	.062"	200	135
65255	.093"	200	135
66100	.093"	200	135
67173	.125"	155	103



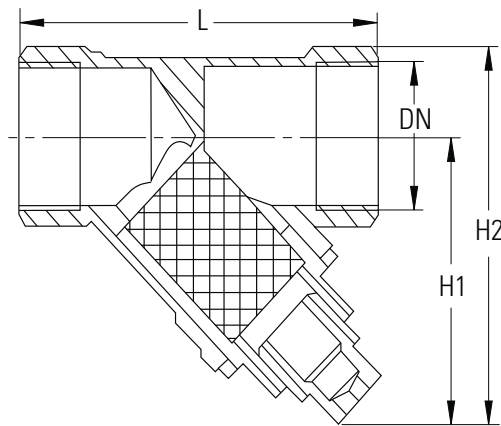
**65187 Half Coupling** - Mount to Reservoir. For use with all bulb wells shown above.



All stock valves are supplied with a drilled and tapped internal by-pass in the regulator body. A solid plug is installed in this hole for 100% shut-off. A drilled orifice plug is packed in an envelope with each valve for field installation, if continuous minimum flow is required.

# Forged Brass Y-Strainer

- Suitable for 600 WPG service, 150 PSI WSP, with easy clean plug
- MSS SP-110 approved
- Temperature range: -10°F to 250°F
- Heavy duty forged brass construction
- Screwed caps are straight threaded with PTFE gaskets
- 304 Stainless steel 50 mesh screen ¼" - 1"
- 304 Stainless steel 20 mesh screen 1¼" - 2"
- Threaded ends comply with ANSI.B2.1
- Female X female connection



Part Number	DN (NPT)	L	H1	H2	Weight (LBS)
56944	¼	1.97	1.50	1.90	0.22
65294	⅜	1.97	1.50	1.90	0.21
65295	½	2.36	1.97	2.44	0.38
65296	¾	2.76	2.09	2.68	0.57
65297	1	2.95	2.24	2.95	0.9
65301	1¼	3.54	2.76	3.74	1.3
65302	1½	4.09	2.99	4.17	1.81
65303	2	4.72	3.35	4.96	3.31

All dimensions in inches, unless noted otherwise.

# Three-Way Thermostatic Valves

## 1/2", 3/4", 1", 1 1/2" & 2" NPT Ports\*

- Self-contained
- Wide range of temperatures
- Rugged construction
- Non-adjustable
- Heavy duty
- Operate in any position
- Tamper-proof
- Replaceable element
- Compact



## Materials

**Housing** Grey iron (steel or bronze optional)  
125 PSI maximum operating pressure

**O-Ring Seals** Viton (Buna N optional)

\*3", 4" and 6" Flange Models also available.

## Operation

TTP thermostatic valves use the principle of expanding wax. A self-contained power element activates a stainless steel sliding valve that provides a positive three-way valve action. All temperature settings are factory set. Elements are field replaceable to obtain the same, or a new bypass temperature setting.

On starting, total flow is in the bypass mode. As the fluid temperature rises, some fluid is diverted to the cooling system. As fluid temperature continues to rise, more flow is diverted until the valve is fully stroked. At this point, all the flow is diverted to the cooler. With respect to temperature ranges, the "nominal" temperature represents the "operating temperature."

Valves are acceptable for oil or water service.

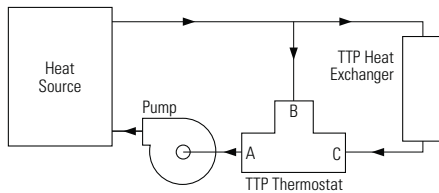
## Applications

Three Way Thermostatic Valves may be installed for either mixing or diverting modes of operation at the preference of the user. They may be mounted in any plane.

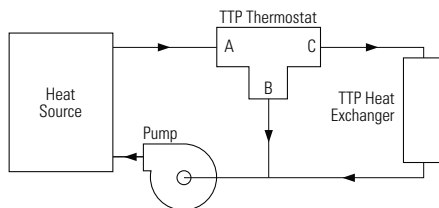
When installed as a mixing valve, it is on the cold side of the application, and mixes hot liquid with cooled liquid to discharge the proper temperature fluid to the process.

When installed as a diverting valve, it is on the hot side of the application, and bypasses the cold liquid allowing the system to warm up, then directs the hot liquid to the cooler.

Temperature settings are nominal. 110°F and 140°F are standard. Other settings are available upon request. The valves begin to "shift" (open) about 10°F below the nominal temperature setting and are fully shifted about 10°F above.



**Mixing Application**



**Diverting Application**

## Typical Installation

**Hydraulic Power Units** Diverting mode 110°F

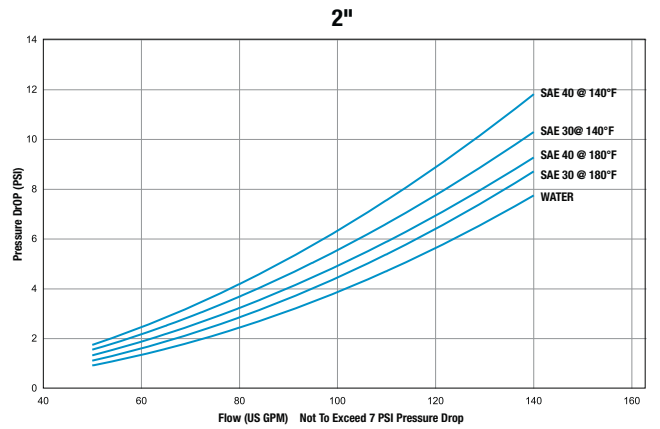
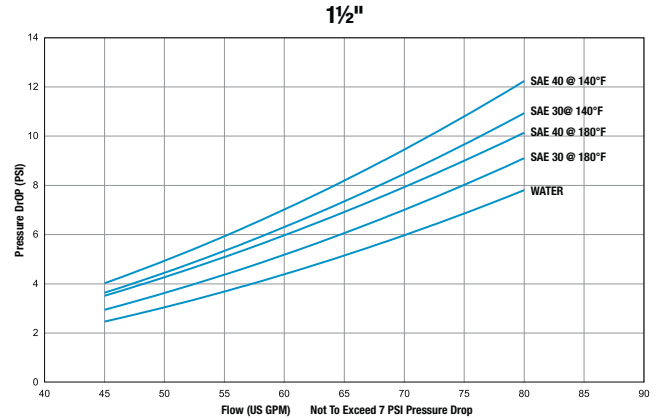
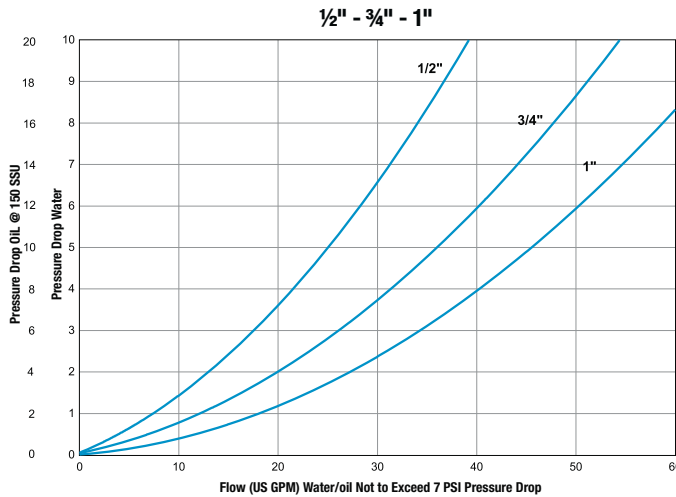
**Air Compressors** Mixing mode 140°F

**Mobile Oil Coolers** Diverting mode 110°F

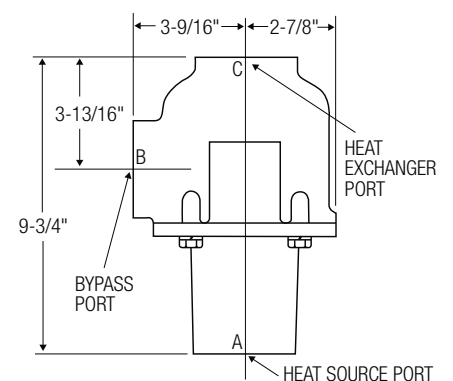
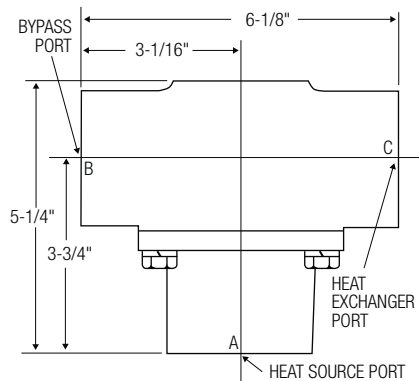
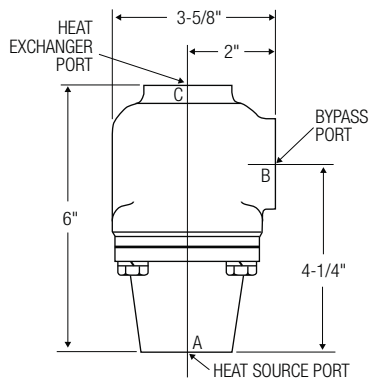
**Radiators** Diverting mode 190°F

# Three-Way Thermostatic Valves

## Pressure Drop Curves



## Dimensions and Part Numbers



Port Size	Part Number
1/2" NPT	66037-110°F
1/2" NPT	66037-140°F
3/4" NPT	66038-110°F
3/4" NPT	66038-140°F
1" NPT	66039-110°F
1" NPT	66039-140°F
#16 SAE	67365-110°F
#16 SAE	67365-140°F

Port Size	Part Number
1 1/2" NPT	66040-110°F
1 1/2" NPT	66040-140°F
#24 SAE	67760-110°F

Port Size	Part Number
2" NPT	66041-105°F
2" NPT	66041-140°F

NOTE: All three ports on any one valve have the same thread size.

# Three-Way Thermostatic Valves

## Special Temperature Ranges

½" - ¾" - 1" NPT Part Numbers	1½" NPT Part Numbers	2" NPT Part Numbers
65974	65977	65978
65975	66040	66041
65976	67760	
66037	(#24 SAE)	
66038		
66039		
67365		
(#16 SAE)		

½" - ¾" - 1" NPT		1½" NPT		2" NPT	
Nominal	Temperature Range (°F)	Nominal	Temperature Range (°F)	Nominal	Temperature Range (°F)
80	77-88	80	70-88	75	70-85
90	80-100	90	80-100	90	85-105
110	100-120	110	100-120	105	100-116
120	110-130	120	110-130	120	110-130
130	120-140	130	120-140	130	124-140
140	130-150	140	130-150	140	135-150
150	140-160	150	140-160	150	145-160
160	150-170	160	150-170	155	150-165
170	163-180	170	163-180	160	155-172
185	175-190	175	170-185	165	160-175
195	185-200	180	175-190	170	165-180
200	190-210	190	185-200	180	175-190
		200	190-210	195	188-208
				210	200-215

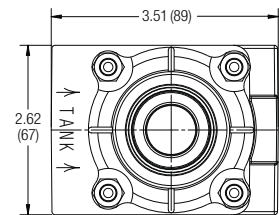
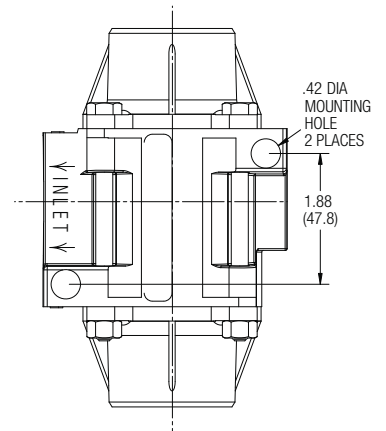
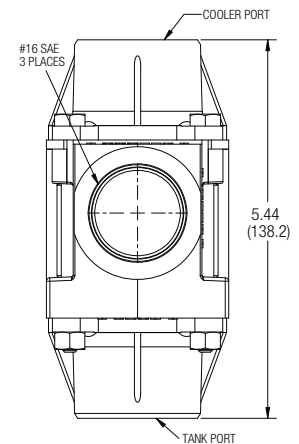
EXAMPLE: 1" NPT, Part Number 66039-90 indicates the 1" NPT valve with a nominal shift temperature of 90°F. The actual operating temperature range in this example is 80-100°F. The valve begins to open at 80°F, and is fully open at 100°F.

## How to Order Consult factory for pricing and lead time

					-				°F
<b>Valve Part Number</b>						<b>Nominal Temperature Setting</b>			

# Thermal Bypass Assembly

This thermal bypass valve is ideally suited for hydrostatic drive circuits which require fast warm-up, controlled fluid temperature, and low return line back pressure. When installed in the return line of a hydraulic circuit that employs an oil cooler, this device will modulate fluid temperature by either shifting return line flow through the cooler, or bypassing directly to the reservoir. In addition, a built-in pressure relief function automatically relieves excess pressure to the reservoir should the cooler become restricted and resultant pressure drop become too high for the cooler circuit.



**Standard Shift Temperatures**

100°F (38°C) 120°F (49°C) 140°F (60°C) 160°F (71°C)

**Full Shift (Cooler Port Open) Temperatures**

Shift temperature plus 25°F (14°C)

**Relief Valve Setting** 65 PSI (4.5 BAR) *Consult factory for other pressure settings.*

**Maximum Operating Pressure** 250 PSI (17 BAR)

**Proof Pressure** 300 PSI (21 BAR)

**Minimum Burst Pressure**

Up to the full shift temperature: 325 PSI (22 BAR).

Above the full shift temperature: 600 PSI (41 BAR).

**Minimum Operating Temperature** -30°F (-34°C)

**Maximum Operating Temperature** Shift temperature plus 75°F (24°C)

**Maximum Flow Rating** 60 GPM (227 l/m)

**Leakage @ 250 PSI (17 BAR) and 60 GPM (227 l/m) Inlet Flow**

Cooler Port:

- 0.5 GPM (2 l/m) maximum up to 5°F (3°C) before shift temp.
- 1.0 GPM (4 l/m) maximum from 5°F (3°C) before shift to shift.

Tank Port: 0.10 GPM (0.4 l/m) maximum

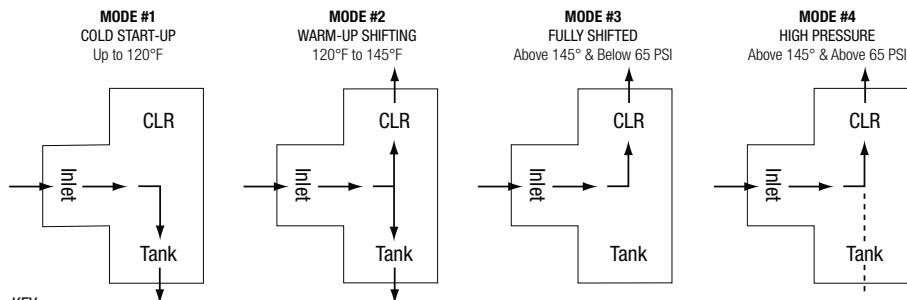
**Operating Fluid** Mineral base hydraulic fluids

**Construction** Aluminum die-cast housing

**Operating Characteristics**

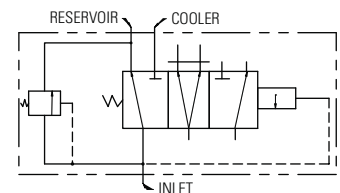
- Mode 1: At temperatures below the shift temperature oil flows from inlet to tank port.
- Mode 2: At temperatures between the start of shift and full shift the flow from the inlet port is divided between the cooler and tank ports.
- Mode 3: At temperatures above the full shift temperature inlet flow is through the cooler port.
- Mode 4: At temperatures above the full shift temperature the excess pressure is relieved through the tank port.

**For 120°F Shift Temperature**



NOTE: If the temperature drops below 145°F the valve will shift back to modes 2 or 1.

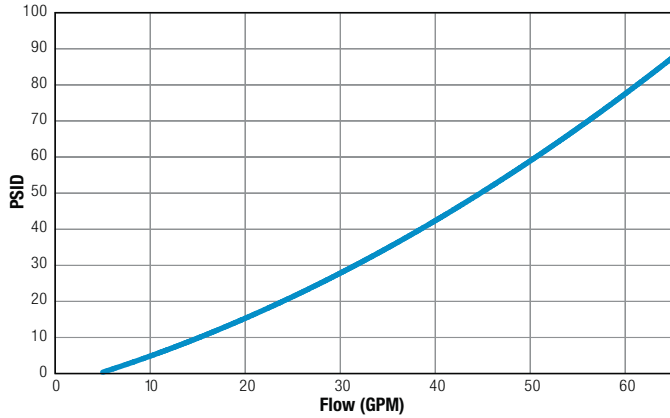
**Graphic Symbol**



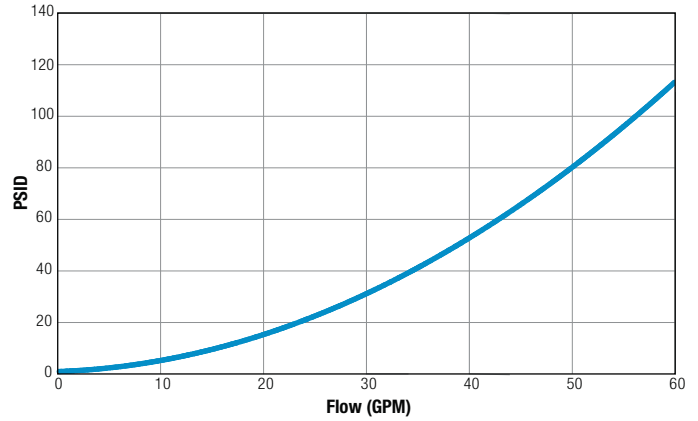
# Thermal Bypass Assembly

## Pressure Drop (Mobile DTE 26 OIL)

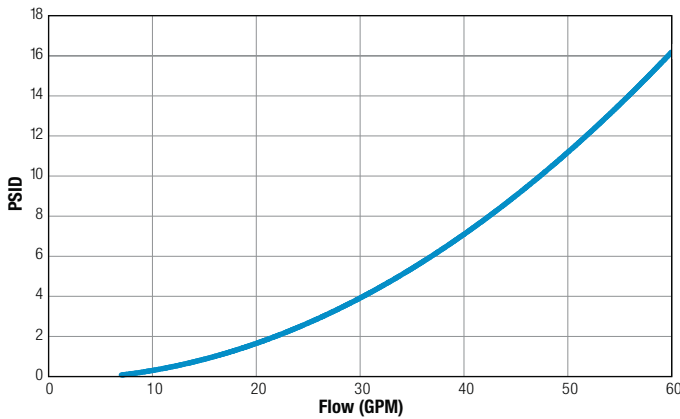
**Inlet Port Thru Tank Port**  
@ 100°F (38°C) (300 SUS)



**Inlet Port Over Integral Relief Valve**  
@ 170°F (77°C) (78 SUS)



**Inlet Port Thru Cooler Port**  
@ 145°F (63°C) (110 SUS)



NOTE: Pressure drop shown is added to relief valve crack pressure for total pressure drop.

Part Number	Shift Temperature
65654	100°F (38°C)
65655	120°F (49°C)
65656	140°F (60°C)
65657	160°F (71°C)

## How to Order Consult factory for pricing and lead time

-   - Thermal Bypass Assembly

**Part Number**

**Pressure Setting**  
65 = Standard, 65 PSI  
Optional pressure settings available in 5 PSI increments, up to 85 PSI.



# Electronic Temperature Control & Bulb Well Assembly (AC)

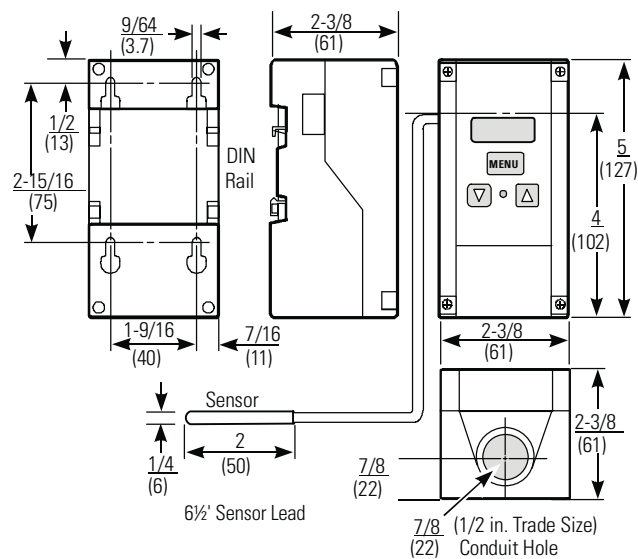
## Part Number 86816

This is a line voltage single-stage electronic temperature control with single-pole, double-throw relay output and LED indication. It is designed with heating or cooling modes of operation, adjustable differential, and an interchangeable temperature sensor. The control couples electronic accuracy with remote sensing capability in a NEMA 1 high-impact plastic enclosure suitable for surface or DIN-rail mounting.

Pilot Duty Relay needed for 460V, not offered by Thermal Transfer Products.

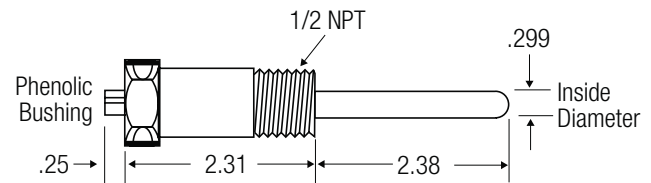
## 67428 Temperature Control with NEMA 1 Enclosure

### Dimensions *Inches (mm)*



## 67429 Bulb Well

### Dimensions *Inches*



## Specifications

<b>Setpoint Range</b>	-30°F to 212°F (-34°C to 100°C)			
<b>Differential Range</b>	1°F to 30°F (0.5°C to 17°C)			
<b>Input Voltage</b>	120 or 208/240 VAC, 50/60 HZ (1 Phase only)			
<b>Current Draw</b>	1.8 VA			
<b>Relay Electrical Ratings</b>	<b>SPDT</b>	<b>120V NO (NC)</b>	<b>280V NO (NC)</b>	<b>240V NO (NC)</b>
	Horsepower:	1 (0.25) HP	1 (0.33) HP	1 (0.5) HP
	Full Load Amps:	16 (5.8) A	9.2 (4.0) A	8.0 (4.9) A
	Locked Rotor Amps:	96 (3) A	55 (24) A	48 (29) A
	Non-Inductive Amps:	15 (10) A	10 (10) A	10 (10) A
	Pilot Duty: 125 VA (NO) @ 24-240 VAC, 125 VA (NC) @ 120-240 VAC, 50 VA (NC) @ 24 VAC			
<b>Sensor Type</b>	Replaceable Thermistor with Reference Resistance of 2.25 K ohms at 77°F (25°C)			
<b>Control Ambient Temperature</b>	Operating: -30°F to 140°F (-34°C to 60°C) Shipping: -40°F to 185°F (-40°C to 85°C)			
<b>Ambient Humidity</b>	0 to 95% RH Non-Condensing, Maximum Dew Point: 85°F (29°C)			
<b>Control Material</b>	Case and Cover: NEMA 1 High Impact Lexan 950® Plastic.			
<b>Agency Listings</b>	UL Listed: File E27734, Guide XAPX (Temperature Indicating and Regulating Equipment) CSA Approved File LR948 Class 4813-02			

Lexan 950 is a registered trademark of the General Electric Company. The performance specifications are nominal.

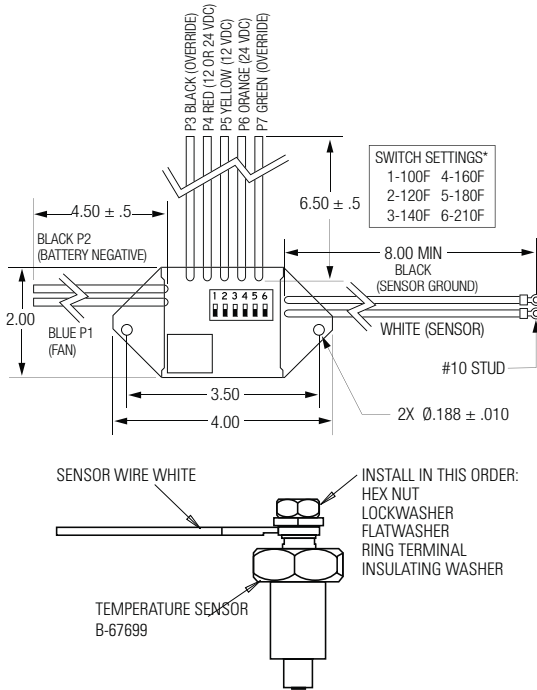
# Thermostatic Temperature Controller (DC)

This controller was designed to mount on the cooler without requiring extensive wiring or plumbing. It provides accurate temperature control by cycling the cooling fan(s) to maintain desired oil temperature.

- 12 or 24 Volt operation
- Adjustable temperature settings range from 100°F thru 210°F
- For use with one or two fan models  
(Relay needed for 2 fan models – not offered by TTP)
- Temperature sensor provided
- Wiring provided for remote manual override
- Mounting hardware included

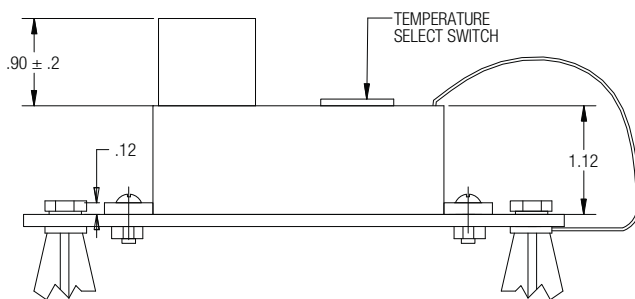


## Wiring Diagrams

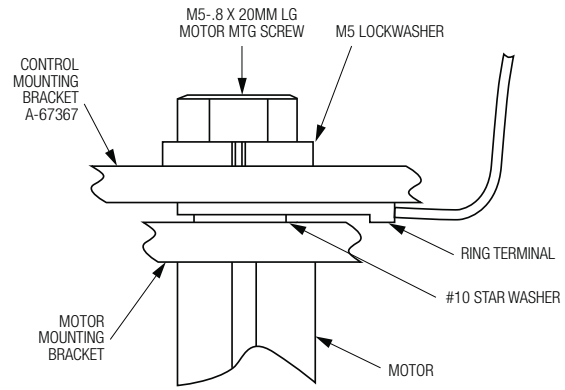


*NOTE: This switch should be fused to prevent damage if ground is lost.  
A 30 Amp Fuse is required in the power supply.  
If manual override switch is not used, insulate P3 Black and P7 Green individually.*

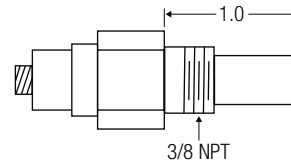
## Connection Assembly



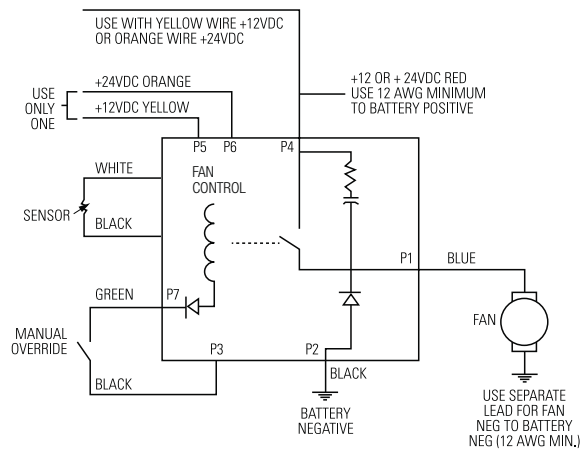
## Control Dimensions



## Sensor Dimensions



## Electrical Schematic



## How to Order

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**Part Number**

- 96171** Electronic Fan Control Kit
- 68790** Replacement Control Only
- 67699** Replacement Sensor Only



# Electronic Temperature Sensors

- Process connection: 1/4" NPT
- 2 switching outputs complementary hysteresis adjustable
- Measuring range of -13 - 284 °F (-25 - 140 °C)

## Function

The unit generates 2 output signals: 1 x NO + 1 x NC with separately adjustable switch points (SET 1) and (SET 2).

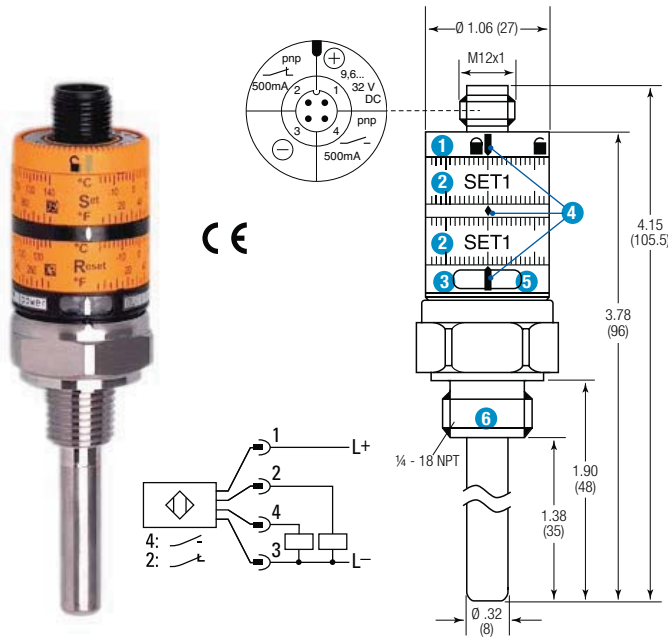
### OUT1

- With rising temperature OUT1 closes when the set value (SET1) is reached.
- With falling temperature OUT1 opens when the value (SET1) minus hysteresis is reached.

### OUT2

- With rising temperature OUT2 opens when the set value (SET2) is reached.
- With falling temperature OUT2 closes when the value (SET2) minus hysteresis is reached.

The hysteresis is fixed at 5 K.

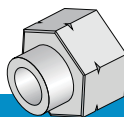


- 1 locking ring
  - 2 setting rings (manually adjustable after unlocking)
  - 3 LED yellow: lights if OUT1 = ON, temperature > [SET1]
  - 4 setting marks
  - 5 LED yellow: lights if OUT2 = ON, temperature < [SET2]
  - 6 process connection 1/4" NPT
- Pin 4 = OUT1 / Pin2 = OUT2

To obtain the setting accuracy, set both rings to minimum values, and then set desired values. All dimensions in inches (millimeters), unless noted otherwise.

## Sensor Port Adapters

Part Number	Description
51627	#8SAE TO 1/2" BSPP
51653	#8 SAE TO 1/4" NPT
51654	#8 SAE TO 1/2" NPT

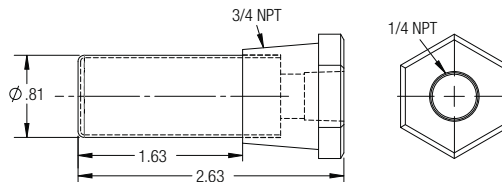


## Technical Data

Application	Liquid and Gases
Electrical Design	DC PNP
Output	Normally open/closed complementary
Operating voltage (V)	9.6 - 32*
Current rating (mA)	500
Short-circuit protection	Yes (non-latching)
Reverse polarity protection	Yes
Overload protection	Yes
Voltage drop	< 2
Current consumption	< 30
Setting Range	
Set point, SP	3 - 284 / 37 - 543 °F (-16 - 140 / 3 - 284 °C)
Reset point, rP	-4 - 277 / 25 - 531 °F (-20 - 136 / -4 - 277 °C)
Adjustment of the switch point	Shims
Accuracy	
Setting accuracy	± 3 K
Repeatability	± 0.1 K
Temperature drift	0.1 / 10 K
Power-on delay time	0.5 s
Measuring element	1 x Pt 1000, to DIN EN 60751, class B
Dynamic response T05 / T09	1/3 s**
Minimum installation depth	.59 inches (15 mm)
Medium temperature	-13 - 257 °F (-25 - 125 °C) 293 °F (145 °C) max. 1 h
Ambient temperature	-13 - 158 °F (-25 - 70 °C)
Storage temperature	-40 - 257 °F (-40 - 212 °C)
Protection	IP 67, III
Shock resistance	DIN IEC 68-2-27:50 g (11 ms)
Vibration resistance	DIN EN 60068-2-6:20 g (10 - 2000 Hz)
EMC	EN 61000-4-2 ESD: 4 kV CD / 8 kV AD EN 61000-4-3 HF radiated: 10 V/m EN 61000-4-4 Burst: 2 Kv EN 61000-4-6 HF conducted: 10V
Housing materials	Stainless steel 316L / 1.4404; PC (Makrolon); PBT (Pocan); FPM (Viton)
Materials (wetted parts)	Stainless steel 316L / 1.4404
Display	Power: LED green; Switching status: LED yellow
Connection	M12 connector; gold-plated contacts
Weight	0.229 lbs (0.104 kg)

\*Operating voltage "supply class 2" to cULus. \*\* According to DIN EN 60751  
The values for accuracy apply to flowing water.

## Optional Bulb Well



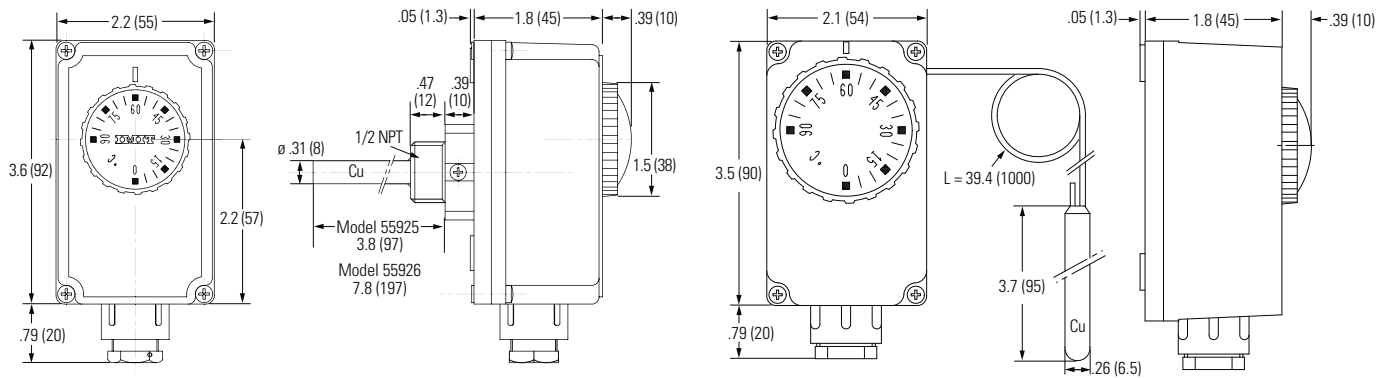
Part Number	Description
55857	Temperature Sensor, dual PNP outputs, 1/4" NPT
55858	Cover, Protective, PK
55859	4-wire Micro DC cordset, straight connector
51661 (Optional)	Bulb Well

# Electronic Temperature Sensors

## Low Cost, Simple Setup

Immersion thermostat, measuring temperature with a liquid filled sensing element. SPDT contacts, complete with waterproof protection pocket. Used to measure temperature on the primary heating pipe circuit, it is particularly suitable for automatic adjustment pumps.

- Contacts rating: 10(2,5)A/250V~
- Contacts: switching or closing contact for temperature increase
- Maximum head temperature: 176°F (80°C)
- Maximum bulb temperature: 257°F (125°C)
- Temperature rate of change: 1° K/min
- Protection degree: IP40



All dimensions in inches (millimeters), unless noted otherwise.

Part Number	Temperature Range	Differential	Maximum Bulb Temperature	Capillary Length	Protection Pocket 1/2" NPT	Copper Bulb
55925	0°/194°F (0°/90°C)	$\Delta t = 4 \pm 1K$	266°F (130°C)	NA	.27x.31x4" (7 x 8 x 100 mm)	NA
55926	0°/194°F (0°/90°C)	$\Delta t = 4 \pm 1K$	266°F (130°C)	NA	.27x.31x8" (7 x 8 x 200 mm)	NA
55927	0°/194°F (0°/90°C)	$\Delta t = 4 \pm 1K$	266°F (130°C)	39" (1000 mm)	NA	Ø .26x3.7" (6.5 x 95 mm)

# MagHex Fan Controller

## Compact Programmable Temperature Sensor

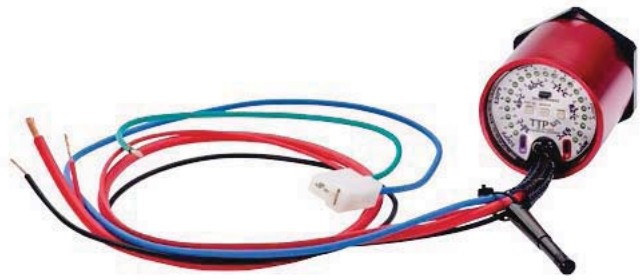
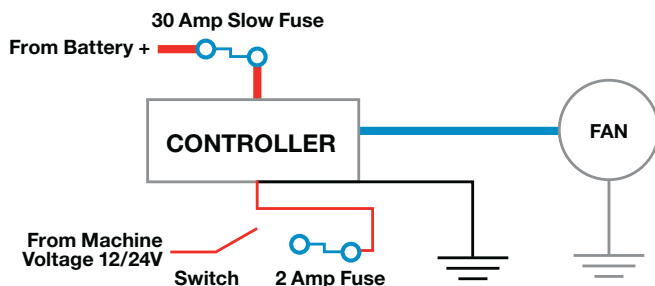
This combined sensor and controller is designed to mount directly to the heat exchanger. It provides accurate temperature control by cycling the electric cooling fan to maintain desired oil temperature. A single housing reduces wiring and mechanical installation. The MAGHEX magnetic wand is used to set up and program the sensor. Not needed for operation. LEDs indicate the oil temperature setting.

## Features

- Easy installation and integration into MA Series (any SAE#8 port or cavity).
- Creates a simple drive circuit with just a few wires and minimal programming.
- Low cost alternative to complex control systems.
- Utilize built-in temperature sensor to activate the fan based upon current set point.
- Capable of providing on board programming & status without the additional component requirements.
- 12 or 24 volt DC operation up to 30 amps.
- Temperature sensor and operation controller in single aluminum housing.
- Select from 20 temperature settings from 100°F to 200°F (38 to 93°C)
- Mounts directly to the cooler.
- Connector to fan is included and pre-wired.
- Solid-state design, no moving parts, fully sealed microprocessor/FET design.
- Manual override feature built-in.
- Shuts off 7 degrees below set point.
- Improved circuitry to accommodate higher amperage applications.
- Housing is used as a heat sink for internal components.
- Automatic low voltage shut down.
- Proportional Speed Control (Brushless version only)

## Installation

1. Insert controller sensor into #8 SAE sensor port on cooler.
2. Connect controller to DC fan (see wire diagram).
3. Provide 30 amp slow fused power to the fan.
4. Connect 2 amp fused power to controller (see wire diagram).
5. Use MAGHEX Programming Wand to set controller to desired temperature.



## Single Fan Controller - Part Number 57565 Dual Fan Controller - Part Number 57566

This sensor will drive one single fan or two dual fans based on 20 adjustable set points in 5°F degree increments from 100°F to 200°F (38 to 93°C).



## PWM Variable Fan Controller Part Number 57567

This sensor will drive one PWM fan based on 20 adjustable set points in 5°F degree increments from 100°F to 200°F (38 to 93°C). There must be a minimum of 20°F degrees between the two set points (20-100% ramp).

## Specifications

Operating Voltage	12 or 24 VDC Systems
Min/Max Voltage	9 VDC / 32 VDC
Current Rating	30 AMPS
Switch Type	Normally open, high side
Ambient Operating Temperature	-40° to +185°F (-40° to +85°C)
Measurement Temperature Range	100°F to 200°F (38 to 93°C)
Current Draw	20 mA
Setpoint Selections	20 set points in 5°F degree increments from 100°F to 200°F (38 to 93°C)
Selection method	Magnetic programming wand
Enclosure Rating	IP69K
Sealed Housing	High-grade Automotive Potting Compound
Housing Material	Anodized Aluminum
Weight	Approximately 8 OZ (.23 KG) including wire
Mounting	#8 SAE Thread
Fan Connector	AMP Connector - Single and Dual Controllers Yazaki Connector - PWM Variable Controller

# Compressed Air Separators



## S-50 and S-100 Models

Two Models: One with a built-in automatic float style drain, the second with a 1/8" NPT connection with manual shut off valve. Rugged cast zinc housing. Equipped with quick disconnect bowls for easy service.



## S-200 thru S-1700 Models

Four models to fit most applications. Unique high efficiency design provides wide SCFM capacity range without loss in performance. Sturdy, lightweight aluminum construction for long dependable service. NPT threaded drain connection for installation of an electronic, manual or automatic float style drain. Low differential pressure at maximum flow ratings. Externally and internally epoxy painted for maximum corrosion protection.



## Model S-2600-M/S-2600-4F

1500 thru 3500 SCFM capacity. Consult factory for details on larger models thru 16,000 SCFM. (S-2600-4F shown above.)

## Maintenance\*

1. Depressurize unit before removing bowl.
2. A. If unit is equipped with a manual petcock, drain bowl at least once per workshift. More frequent draining may be required
  - B. If unit is equipped with an automatic float drain attached to the bowl, clean by turning bowl upside down, tapping on table top, and blow clean with airblow gun.
3. If bowl seal is cracked, damaged, or deteriorated, replace with approved seal.

\*Service parts are not available.

# Compressed Air Separators

## Dimensions

Model Number	A	B	C	D	E (NPT)	F (NPT)	Weight LBS.
S-50 M	3.25	0.98	3.25	7.20	½"	⅙"	2.9
S-100 M	4.62	1.00	4.75	10.00	1"	⅙"	6.0
S-100 AD	4.62	1.00	4.75	10.00	1"	⅙"	6.0
S-200 M	5.10	1.60	4.38	10.80	1"	½"	4.8
S-300 M	6.70	2.00	4.38	17.00	1½"	½"	11.2
S-600 M	6.70	2.00	6.00	17.00	2"	½"	11.2
S-1700 M	8.10	2.40	7.75	19.90	3"	½"	22.0
S-2600 M	13.75	7.25	8.62	30.50	4"	¾"	85.0
S-2600 4F	16.75	7.25	8.62	30.50	4" Flg	¾"	100.0

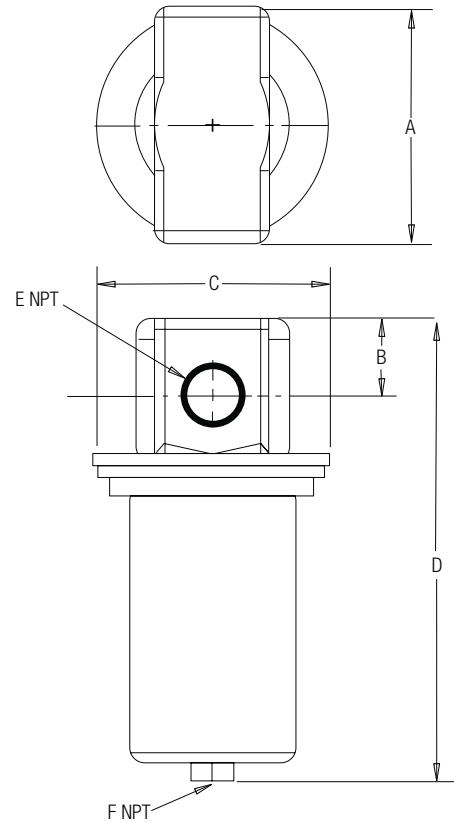
\*Supplied with manual shut off valve.

## Specifications

Model Number	SCFM Range 100 PSIG		Δ P At Maximum SCFM	PSI Maximum	Temp °F Maximum	Bowl Maximum	Drain Type
	Minimum	Maximum					
S-50 M	5	50	0.5	200	175	Cast Zinc	Manual
S-50 AD	5	50	0.5	200	175	Cast Zinc	Automatic with Internal Float
S-100 M	11	120	0.5	200	175	Cast Zinc	Manual
S-100 AD	11	120	0.5	200	175	Cast Zinc	Automatic with Internal Float
S-200 M	11	233	0.7	232	176	Aluminum	Manual
S-300 M	60	472	1.0	232	176	Aluminum	Manual
S-600 M	100	742	1.3	232	176	Aluminum	Manual
S-1700 M	260	1700	1.0	232	176	Aluminum	Manual
S-2600 M	1500	3500	1.5	150	350	Carbon Steel	Manual
S-2600 4F	1500	3500	1.5	150	350	Carbon Steel	Manual

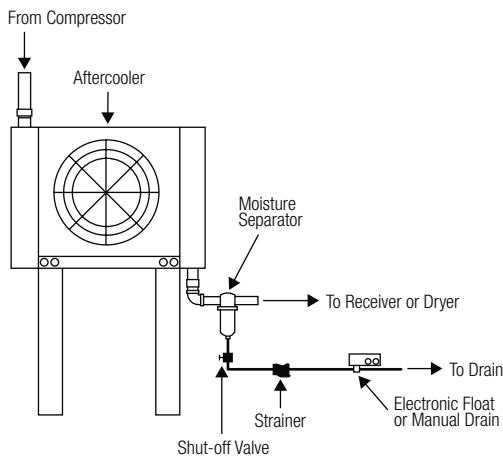
MINIMUM OPERATING TEMPERATURE - 35°F

Specifications and dimensions subject to change without notice.

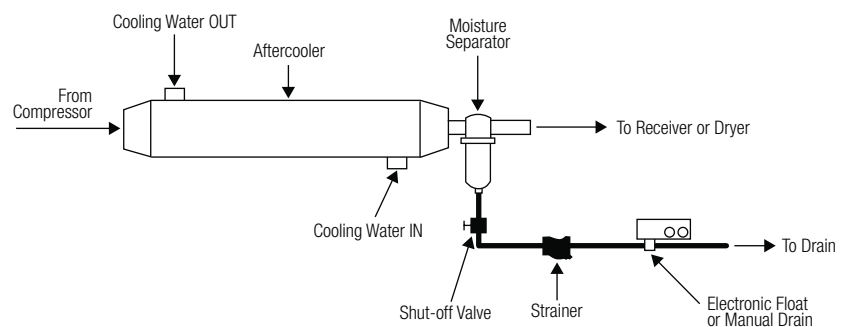


## Recommended Typical Installation

### Air Cooled Equipment



### Water Cooled Equipment





# Automatic Float Drain

## FD-25 and FD-50 Models

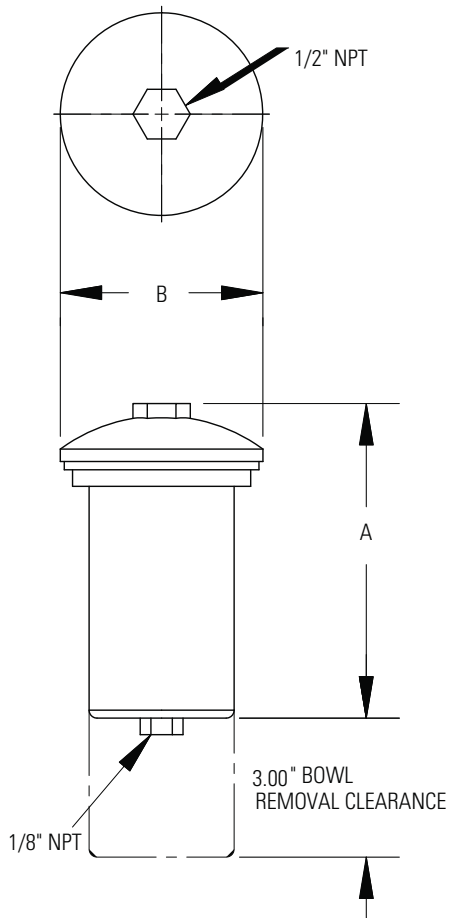
Two Models to fit most applications. Rugged zinc cast housing. Equipped with quick disconnect bowls for easy servicing. Economical cost.

## Specifications

Model Number	Part Number	PSI Maximum	Temp °F Maximum	Approximate Weight (LBS)
FD-25	66278	200	175	2.0
FD-50	66279	200	175	5.0

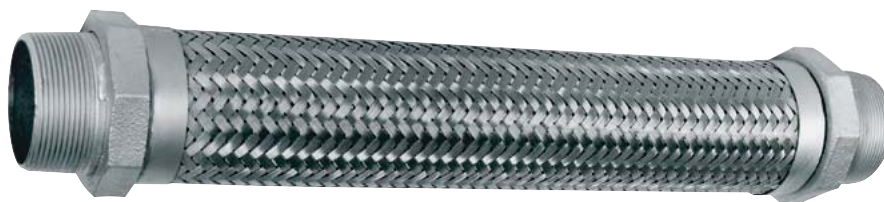
## Dimensions

Model Number	A	B
FD-25	4.75	3.06
FD-50	8.50	4.75



# Flexible Metal Hose

Designed to isolate damaging vibration, dampen noise and absorb thermal expansion from pumps and compressors to other related equipment. Hose is of corrosion resistant type 304 stainless steel. Connectors are carbon steel schedule 40 external NPT with hex nut attachments on both ends for easy installation. Couplings are welded to assure dependable leak free operation.



## Specifications & Dimensions

Part Number	Connections NPT	Hose Inside Diameter	Overall Length	Working Pressure PSI			Fitting Length (Each End)	Approximate Shipping Weight (LBS)
				At 70°	At 300°	At 400°		
67492	.5	.5	10	1000	900	863	2.00	2.0
66271	1.0	1.0	12	525	460	435	1.75	2.0
66272	1.5	1.5	16	450	395	370	2.00	3.0
66273	2.0	2.0	18	400	350	330	2.00	4.5
66274	2.5	2.5	20	285	250	235	2.50	8.5
67442	3.0	3.0	22	265	230	220	3.00	12.5
66275	4.0	4.0	24	260	225	215	4.00	14.5

All dimensions are inches. Maximum operating temperature 1500°F. Other sizes and lengths available—consult factory.

## Dimensions

Part Number	Description
67492	.5 x 10 Flex Hose
66271	1 x 12 Flex Hose
66272	1.5 x 16 Flex Hose
66273	2 x 18 Flex Hose
66274	2.5 x 20 Flex Hose
67442	3 x 22 Flex Hose
66275	4 x 24 Flex Hose

All shipments FOB Racine, WI USA

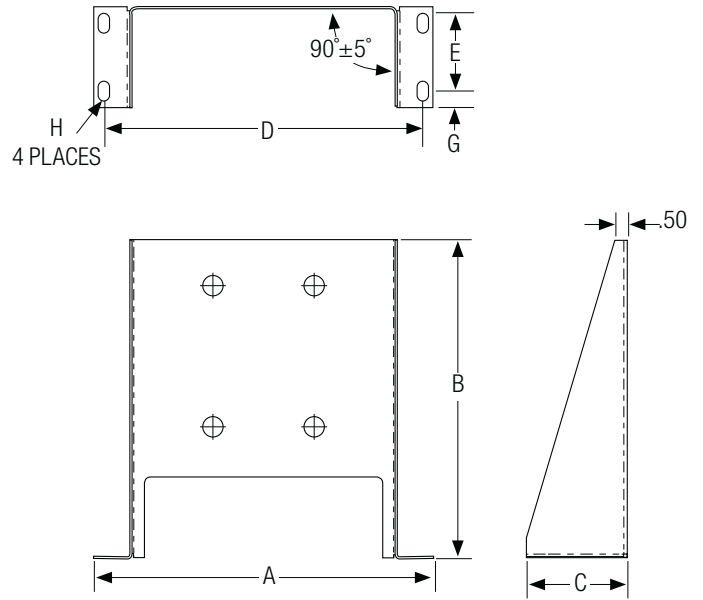
## Installation

The satisfactory performance of flexible hoses is dependent upon certain precautions which must be taken at the time of installation.

1. Install the flexible hose directly on the pump, compressor or other equipment. If this is not practical, install as close as possible to the source of vibration.
2. **Do not** compress, twist or stretch during installation. Premature failure will result.
3. Flexible hoses must be installed so that its length is perpendicular to the direction of the vibration.
3. Support piping as needed to eliminate stress to the flexible hose. It must support only its own weight.

# Foot Mounting Bracket

Optional Foot Mounting Bracket for **BPSW** and **BPW** Series (except 8x3 plates).  
 Constructed of Carbon Steel.



Mounting bracket for location purposes only. Bracket is not designed to support entire weight of the cooler. Customer to add extra support if necessary.

## Dimensions

Part Number	Plate Size	A	B	C	D	E	G	H
56839	12x5 (305x127)	7.99 (203)	9.35 (237)	3.15 (80)	7.17 (182)	1.77 (45)	0.69 (18)	.40 x .59 (10 x 15)
56840	20x5 (508x127)	7.99 (203)	15.65 (398)	3.15 (80)	7.17 (182)	1.77 (45)	0.69 (18)	.40 x .59 (10 x 15)
56841	15x5 (381x127)	7.99 (203)	12.74 (324)	3.15 (80)	7.17 (182)	1.77 (45)	0.69 (18)	.40 x .59 (10 x 15)
56842	15x10 (381x254)	13.20 (335)	12.40 (315)	3.94 (100)	12.40 (315)	2.64 (67)	0.65 (17)	.40 x .75 (10 x 15)
56843	20x10 (508x254)	13.51 (343)	14.37 (365)	3.94 (100)	12.72 (323)	2.64 (67)	0.65 (17)	.40 x .75 (10 x 15)
56844	28x10 (711x254)	13.20 (335)	21.30 (541)	3.94 (100)	12.40 (315)	2.64 (67)	0.65 (17)	.40 x .75 (10 x 15)

All dimensions are in inches (millimeters), unless noted otherwise.